Climate Outlook for January to March, 2011

Current Status with the Climate System

La Niña conditions continued to strengthen during the fall season. La Niña is associated with a periodic cooling of the waters in the equatorial part of the Pacific Ocean.

An appreciable rainfall event occurred on December 24th, for most of the Big Country, Concho Valley, and Heartland. Rainfall amounts across these areas were generally between seven tenths of an inch, and 1.25 inches. However, for the northwestern half of Fisher and extreme northwestern Nolan Counties, the amounts were less than one half inch.

The past 2 months leading up to the recent rain event have been very dry across West Central Texas with little, if any, rainfall. This was reflected in the U.S. Drought Monitor, issued by the National Drought Mitigation Center (Figure 1). As of December 21st, West Central Texas was encompassed in moderate to severe drought conditions.

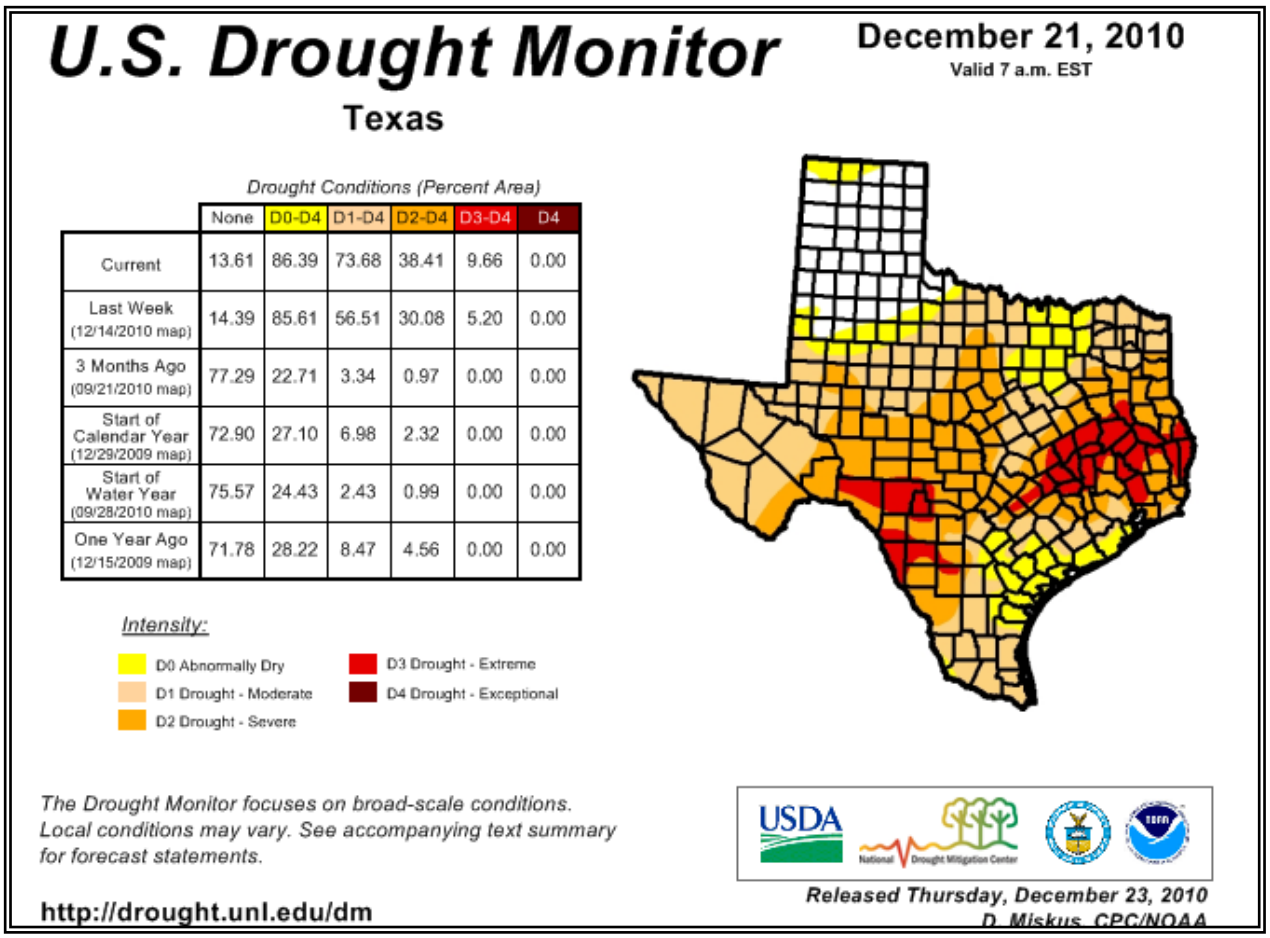

Figure 1: Drought Monitor for Texas (issued by National Drought Mitigation Center).

Even when the December 24th rain event is included, the percentage of normal precipitation for the past 60 days is below normal across the entire region.

La Niña and its Importance

La Niña (and El Niño) conditions are the most well understood, in terms of their long-term impacts on weather patterns worldwide. Their developments have far-reaching effects on global circulation patterns which, in turn, affect the position and strength of jet streams. This has an important influence on the strength and track of storm systems.

Over the years, specific weather patterns have been observed, in association with La Niña (and El Niño) conditions, especially for the stronger events. This has led to a better understanding of their effects on a large scale. Their effects can be accounted for in the long-range outlooks.

Climate Outlook for Winter Season 2010-2011

The Climate Prediction Center indicates that La Niña conditions will continue through the end of this winter and persist through the spring season. From recently observed trends and climate model forecasts, a strong La Niña event is expected.

Figures 2 and 3 show the January-March Outlooks, from the Climate Prediction Center, and take into account the anticipated effects of La Niña.

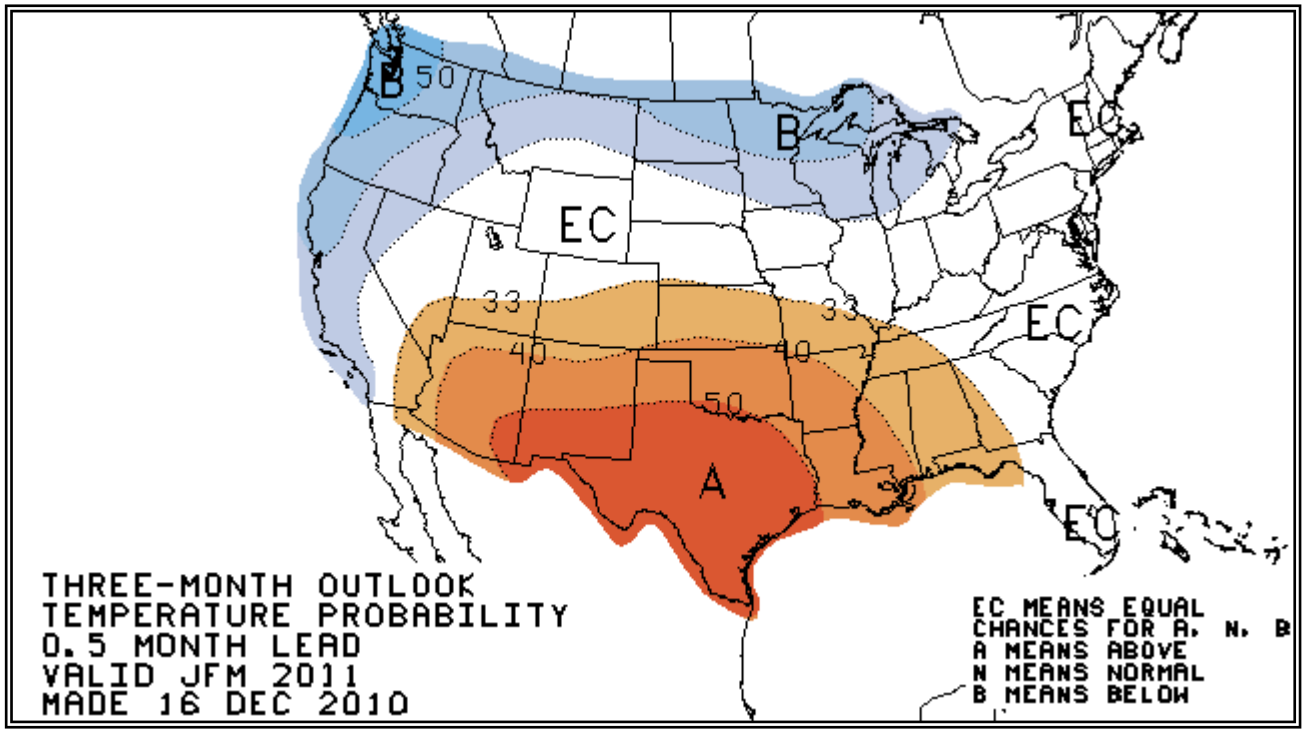

Figure 2: Temperature Outlook for January-March, 2011.

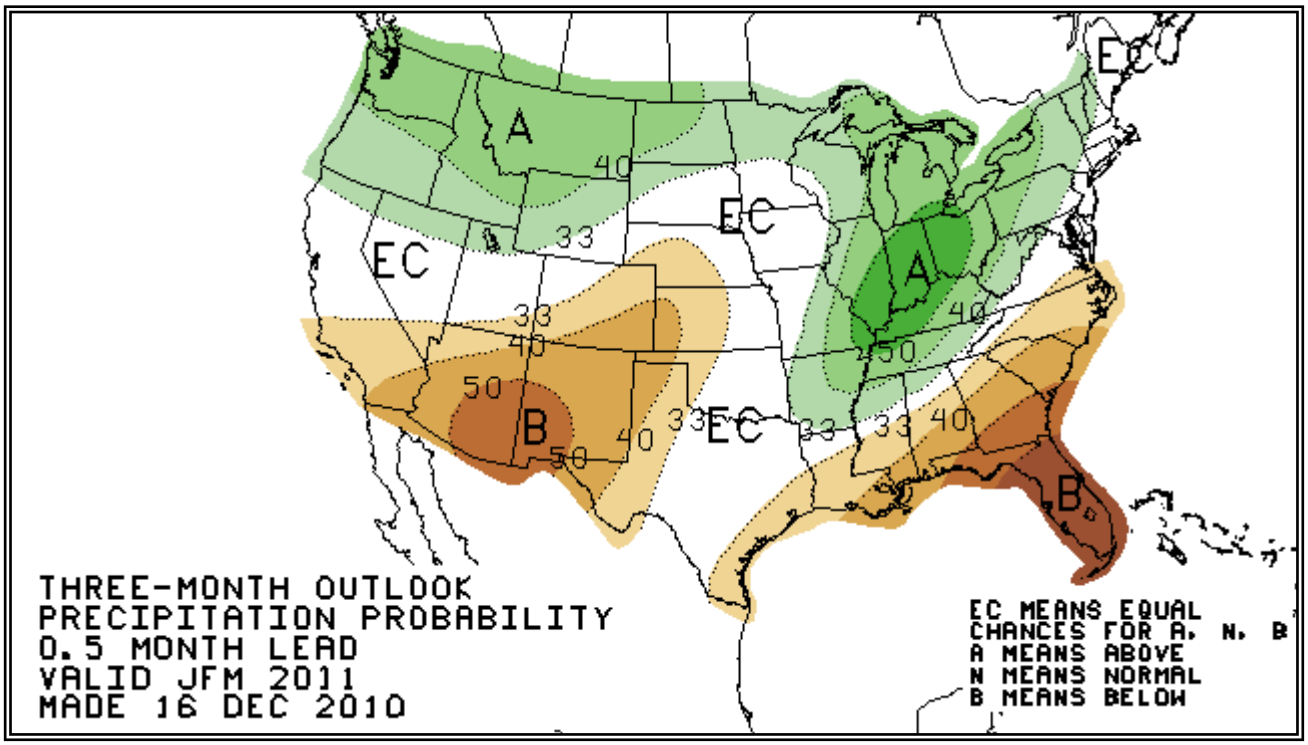

Figure 3: Precipitation Outlook for January-March, 2011.

The temperature outlook indicates an enhanced probability for temperatures to average above normal across all of West Central Texas. The precipitation outlook indicates slightly enhanced probability for precipitation to be below normal across the Texas Panhandle, South Plains, and West Texas, with an equal chance for precipitation to be below, near, or above normal across West Central Texas. Even though the precipitation outlooks have higher probabilities for below normal precipitation across our area through January and February, the outlook changes when March is included. A springtime weather pattern develops across our region in March, which brings the possibility of thunderstorms, and usually marks the beginning of severe weather season. Thunderstorms can bring locally heavy rainfall, and occur on a smaller scale than the long-range precipitation outlooks can take into account. A single wet weather event with showers and thunderstorms can bring rainfall amounts higher than the normal monthly rainfall.

Possible Implications with Patterns Influenced by La Niña

When stronger La Niña events occur, the effects can influence regional weather patterns which can help to bring about the following in West-Central Texas:

- Development and expansion of drought conditions.
- Persistence or worsening of pre-existing drought conditions.
- Increased fire weather concerns. The track of storm systems can result in repeated weather events where strong, gusty winds are accompanied by intrusions of warm and dry air into our area.

Other Considerations

Even though there are pattern similarities with La Niña, there are unique characteristics with each new season, as no two events are exactly alike. Even when a La Niña pattern prevails overall in a winter season, winter precipitation events and intrusions of cold air can still occur. Further research is needed to learn more about the variations which can occur with La Niña (and El Niño) events.

Concluding Remarks

The NOAA Climate Prediction Center indicates that La Niña conditions will continue through the remainder of this winter, and will persist through the spring. The Outlooks for January-March show enhanced probabilities for temperatures to average above normal across West Central Texas, and equal chances for precipitation to be below, near, or above normal.